



**MANAGER of RESEARCH & TECHNICAL SERVICES: Mike Vaughn**

**AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS, INC.**

Technical Committee TC 5.9 - Enclosed Vehicular Facilities

Meeting Minutes - February 8, 2005 - Orlando, FL

**Paul Miclea called the meeting to order at 3:40 PM.** 9 out of 12 voting members present provided quorum.

**Review of prior TC 5.9 Meeting Minutes (June 29, 2004 - Nashville, TN):** John Murphy made a motion to approve the minutes; Gary Kile seconded the motion. The minutes were approved without revision.

**Section 5.0 Announcements:** TC5.9 Chair Paul Miclea reported that ASHRAE has increased its interest in producing CD-based Handbook editions and DVD recordings of Program seminars, the latter of which having sold approximately 2500 copies from the last Annual Meeting in Nashville. At the suggestion of the TC chairs, ASHRAE will also consider including symposium paper presentations on the DVD recordings. He also reiterated that the TC's and the seminar chairs are responsible for the technical content of the presentations, and that either the seminar chair or the presenter may request that a presentation be excluded from the DVD recording. In addition, Paul reported that the individual TC websites are now linked to the main ASHRAE website, though some TC websites are still on different servers. Webmaster training sessions will be held to incorporate all TC websites onto the ASHRAE server. On-line member voting will also be available via the TC websites. Finally, he noted that the TC chairs were asked to submit nominations for the Hightower Award, as well as other ASHRAE awards.

**Program Sub-Committee Report:** Kirk McDaniel provided this report for Sub-Committee Chair Ray Sinclair. Kirk recognized the Program event that was part of the Orlando meeting agenda, and summarized the proceedings of the TC5.9 Program Sub-Committee meeting (1:05 PM - 2:05 PM, February 8, 2005). During the Sub-Committee meeting, each of the scheduled TC5.9 Program events was re-visited in terms of: event type, proposed meeting date, topic, planned contributors and chairperson availability. The current TC5.9 Program event status is:

- **Orlando, FL (February 5-9, 2005)**

OR1: Symposium - 'Ventilation and IAQ in Large Mass Transit Facilities' (Chair: G. Hadjisophocleous)  
George reported that this event commenced as scheduled at 10.15 AM on February 8<sup>th</sup>, and was well-attended. The symposium was co-sponsored by TC5.6. The event was rated favorably, but the 50-minute timeframe allotted for the presentation of the 3 symposium papers was considered to be too short.

- **Denver, CO (June 25-29, 2005)** - registration deadline is February 18, 2005

DE1: Seminar - 'Thermal Comfort and IAQ in Enclosed Vehicular Facilities' (Chair: Greg Sanchez)

DE2: Forum - 'Vulnerability of Enclosed Vehicular Facilities to Extraordinary Incidents' (Chair: Paul Miclea)

DE3: Forum - 'Fire Detection & Instrumentation in Tunnels' (Chair: Sean Cassidy)

- **Chicago, IL (January 14-18, 2006)** - registration/submittal deadline is August 5, 2005

CH1: Seminar - 'Current Specifications & Practices for Enclosed Vehicular Facility Ventilation Equipment' (Co-Chairs: Gary Kile and Robert Smith); possible combination with 'Equipment Testing, Specifications & Performance' symposium (Chair: Sudhir Agrawal)

CH2: Symposium - 'Evacuation Methods of Analysis in Mass Transit Facilities' (Chair: Jeffrey Tubbs)  
Jeff reported via e-mail that 2 papers are in development, and that John Klote & Jim Milke were expected to contribute 2 other papers. Drafts due April 1, 2005.

CH3: Forum - 'Fire Suppression in Tunnels' (Chair: TBD)

- **Quebec City, CANADA (June 24-28, 2006)**

QC1: Symposium - 'Methods of Estimating Fire Heat Release Rates of Transit Vehicles' (Chair: TBD)

QC2: Seminar - 'Comparison of Tunnel Ventilation Simulation and Field Tests' (Chair: Jurij Modic)

QC3: Seminar - 'Fire Detection and Instrumentation in Tunnels' (Chair: TBD)

QC4: Seminar - 'Emergency Transit Station Ventilation CFD Model Benchmark Roundtable' (Chair: TBD)

- **Dallas, TX (February 10-14, 2007)**

DA1: Forum - 'Alternate Fuel Vehicle Facilities' (Chair: TBD)

DA2: 'Guidelines to Improve Performance of Fans after Installation'

DA3: 'Commissioning and Manufacturing Requirements of Ventilation Equipment'

DA4: 'Sustainable Design'

DA5: 'CBR Issues'

DA6: 'Standards'

Detailed scheduling and prioritizing of Program events was only concluded for upcoming Denver and Chicago meetings; other events tentatively scheduled for Quebec City and Dallas meetings will be re-visited in future. Discussion was held regarding timeframe allotments for symposiums; 50-minute durations were considered to be too short for both presentation and audience Q&A of 3 papers. Future objective will be to organize symposiums based upon 4-to-5 papers, and a 2-hour timeframe. Paul Miclea renewed TC5.9 impetus to seek co-sponsorship of future Program events in order to avoid scheduling conflicts, and to demonstrate cross-interest of topics.

**Research Sub-Committee Report:** Sub-Committee Chair John Murphy reported that the Research Topic Acceptance Request (RTAR) entitled 'Subway Vehicle Fire Scenarios' was not submitted due to lack of sufficient cost estimate data. As discussed in the TC5.9 Research Sub-Committee meeting (2:05 PM - 2:30 PM, February 8, 2005), new objective is to collect cost estimates for Denver meeting and submit RTAR in August. John noted that the estimated cost of the RTAR is expected to exceed ASHRAE resources; co-sponsors will likely to be needed. RTAR write-up was distributed to TC5.9 voting members in July 2004; corresponding members may view RTAR via TC5.9 website. Other potential research topics were discussed, including possible RTAR emanating from proposed 'Fire Suppression in Tunnels' forum. David Newman suggested a possible research topic regarding chemical and biological agent detection/response; Jurij Modic made note of a related EU/NATO initiative entitled 'Terror in Long Tunnels', and volunteered to collect publicly-distributed information for the benefit of TC5.9. Paul Miclea suggested another possible research topic regarding tunnel air filtration; Johnny Andersson made note of related Stockholm Metro concerns about PM-10 particle content within the tunnels.

**Handbook Sub-Committee Report:** Sean Cassady provided this report for Sub-Committee Chair Colin Macedo. Sean distributed a list of the Chapter 13 section authors for the 2007 HVAC Applications Handbook edition. The following sections/authors were confirmed: General Organization & Introduction (Art Bendelius & Paul Miclea); Road Tunnels (Art Bendelius), Toll Booths (Sharad Patel); Parking Garages & Bus Garages (Kelly Gibling); Bus Terminals (Dharam Pal); Rapid Transit (Paul Miclea), Railroad Tunnels (Joe Grella & Sam Levy), Automotive Repair Facilities (David Brown); Diesel Locomotive Facilities (Joe Grella & Amy Musser); Equipment/Fans (John Murphy) and, Equipment/Dampers (Roger Lichtenwald). In the earlier TC5.9 Handbook Sub-Committee meeting (2:30 PM - 3:30 PM, February 8, 2005), a revised Table of Contents was distributed for TC5.9 voting members' consideration. Comments included the need for an 'Equipment' section, the re-titling of 'Rapid Transit Tunnels' section to include stations, concerns over the depth of text in the 'Safety Standards and Procedures' section and the need to address Sustainability within the chapter. Sean Cassady made a motion for a vote to accept the new chapter format; John Murphy seconded the motion. The vote in favor of the new Chapter 13 format was 9-0.

A schedule was devised to draft the introductory sections (13.1 to 13.5.3) within the next three months, and distribute the text to the section authors for review/coordination before the Annual Meeting of TC5.9 in Denver.

Paul Miclea cited other ASHRAE handbook concerns regarding the accuracy of equations, the inclusion of dated references, the cross-linking of material with other chapters, and the length of the individual chapters.

**Liaison Reports:** Aresh Raychaudhuri reported on the completed TC5.1 Program events, including Forum 8 - 'How Do We Maximize the Air & Sound Performance of Plenum Fan Applications?' (8:00 - 10:00 AM, February 7<sup>th</sup>), and Symposium OR-05-14 - 'Inlet System Effects on the Performance and Noise of Axial Flow Fans' (9:00 - 9:50 AM, February 8<sup>th</sup>). The symposium was co-sponsored by TC5.9; the forum had about 45 attendees. TC5.1 is proposing a seminar and a forum for the Annual Meeting in Denver; TC5.9 co-sponsorship was requested. Gary Lougheed reported on the completed TC5.6 Program events, including Seminar 24 - 'Fire and Smoke Control: Back to Basics', (8:00 - 10:00 AM, February 7<sup>th</sup>). TC5.6 is proposing a symposium and a seminar for the Denver Annual Meeting; TC5.9 co-sponsorship was requested. Gary also noted that errata, based on comments received from students, would be forthcoming on the latest Klote & Milke 'Design of Smoke Management Systems' text. TC5.6 has formed an ad-hoc committee to oversee the next edition of the text within 1-1.5 years.

Mark Colino read an update of the NFPA 130 Committee activities that was provided by Chair Bill Kennedy. The NFPA 130 Committee met in Phoenix, AR during January 24-26, 2005 to evaluate the proposed revisions to the 2006 Standard edition. Approximately 305 proposals were evaluated; the remaining proposals will be evaluated during a February 10, 2005 meeting in Boston, MA. NFPA 130 Committee actions on all proposals will be available for public comment on NFPA's website from June 24 to September 2, 2005. The 2006 edition of the NFPA 130 Standard is expected to be issued in autumn 2006. Art Bendelius provided the liaison report for NFPA 502 Committee activities. Art reported that the 2004 edition of NFPA 502 Standard was now available, and that he had stepped down as Committee chair. Art also made note of an upcoming NFPA/PIARC workshop on fixed fire suppression systems in tunnels in order to re-evaluate current technical positions, and expand the existing knowledge base. The workshop will be held in Las Vegas, NV during June of 2005. Art Bendelius also provided a liaison report for PIARC, for which he is chair of the 'Ventilation & Fire Control in Road Tunnels' working group. In May 2005, PIARC is preparing to publish a new volume entitled, 'Systems and Equipment for Fire & Smoke Control in Road Tunnels'. PIARC has also just recently published a volume entitled, 'Road Tunnels: Vehicle Emissions & Air Demand for Ventilation', which addresses the PM-10 particle level control issue.

Kirk McDaniel reported on the mining industry and noted that the Society of Mining Engineers was scheduled to meet in Salt Lake City, during late February. Kirk also noted that a World Mining Congress is scheduled for June 2005 in Brisbane, Australia; 80-90 technical papers are planned to be presented. In addition, he noted that the next North American Mine Ventilation Symposium is scheduled for May 2006 at Pennsylvania State University.

Jesus Rohena provided an update on FHWA activities. Jesus indicated that FHWA had published design guidelines - which reference NFPA 502 for fire-life safety provisions - for road tunnels, and that the next step would be for FHWA to produce design standards. He also reported that there were new talks on the Memorial Tunnel test site, and that a New Mexico-based laboratory was interested in using it as a radioactive transport container test facility, as part of the Yucca Mountain development project. Further, the FHWA is planning a tour of certain European countries in order to gather information on their latest road tunnel fire-life safety and security measures. Jesus also provided the FHWA website address: <http://www.fhwa.dot.gov/bridge/tunnel/index.htm>, and made note of an FHWA 'ask the expert' question window - to which TC5.9 members may aid with the responses.

**Membership:** Paul Miclea invited new ASHRAE members and meeting guests to formally join TC 5.9.

**Website:** Sean Cassidy provided the username and password for members to access the TC5.9 website.

**New Business and Comments:** Paul Miclea reported that TMI had conducted a Tunnel Fires Conference during October 2004 in London, and that a Tunnel Safety Conference had been held during November 2004 in Maryland. In the latter conference, technical papers had been presented on the performance of mist systems, as well as on fire heat release rate estimation, chemical/biological agent detection and security issues.

Igor Maevski initiated a discussion on potential ASHRAE accreditation of members' preparation of symposium papers/seminar presentations, as well as participation in Program events and Technical Committee meetings.

**Adjournment:** Gay Kile made a motion to adjourn; Asesh Raychaudhuri seconded the motion. TC5.9 Chair Paul Miclea adjourned the meeting at 5:20 PM. Next meeting is scheduled for June 28<sup>th</sup> in Denver, CO.

*Recorded by Mark Colino, TC5.9 Secretary*